

What is claimed is:

1. A catalyst for removing nitrogen oxides which is used to denitrify exhaust gas containing nitrogen oxides, which comprises: at least one kind of oxide selected from the group consisting of copper oxides, chromium oxides, and iron oxides; and which further comprises: at least one kind of titanium oxide; at least one kind of tungsten oxide; and at least one kind of vanadium oxide.

2. A catalyst for removing nitrogen oxides which is used to denitrify exhaust gas containing at least  $\text{NO}_2$ , which comprises: at least one kind of oxide selected from the group consisting of copper oxides, chromium oxides, and iron oxides as a component for reducing  $\text{NO}_2$  to  $\text{NO}$ ; and which further comprises: at least one kind of titanium oxide; at least one kind of tungsten oxide; and at least one kind of vanadium oxide as components for reducing  $\text{NO}$  to  $\text{N}_2$ .

3. The catalyst for removing nitrogen oxides according to claim 2, wherein the component for reducing  $\text{NO}_2$  to  $\text{NO}$  consists of a copper oxide.

4. The catalyst for removing nitrogen oxides according to claim 2 or 3, wherein the oxides are contained so that 5 to 23 tungsten, 0.1 to 5 vanadium, and 5 or less copper are contained with respect to 100 titanium in atomic ratio.

5. The catalyst for removing nitrogen oxides according to claim 2, wherein the component for reducing  $\text{NO}_2$  to  $\text{NO}$

consists of a chromium oxide.

6. The catalyst for removing nitrogen oxides according to claim 2 or 5, wherein the oxides are contained so that 5 to 23 tungsten, 0.1 to 5 vanadium, and 5 or less chromium are  
5 contained with respect to 100 titanium in atomic ratio.

7. The catalyst for removing nitrogen oxides according to claim 2, wherein the component for reducing  $\text{NO}_2$  to NO consists of an iron oxide.

8. The catalyst for removing nitrogen oxides according  
10 to claim 2 or 7, wherein the oxides are contained so that 5 to 23 tungsten, 0.1 to 5 vanadium, and 5 or less iron are contained with respect to 100 titanium in atomic ratio.

9. A catalyst molded product for the catalyst for removing nitrogen oxides as described in claim 2, wherein the  
15 catalyst molded product is obtained by mixing the component for reducing NO to  $\text{N}_2$  with the component for reducing  $\text{NO}_2$  to NO.

10. A catalyst molded product for the catalyst for removing nitrogen oxides as described in claim 2, wherein the  
20 catalyst molded product is formed by carrying the component for reducing  $\text{NO}_2$  to NO on the component for reducing NO to  $\text{N}_2$  and then by molding.

11. A catalyst molded product for the catalyst for removing nitrogen oxides as described in claim 2, wherein the  
25 catalyst molded product is formed by carrying the component

for reducing NO<sub>2</sub> to NO on a molded product molded by using the component for reducing NO to N<sub>2</sub>.

12. An exhaust gas treating method using the catalyst for removing nitrogen oxides as described in claim 1 or 2.

5 13. An exhaust gas treating method using the catalyst for removing nitrogen oxides as described in claim 1 or 2, wherein the NO<sub>2</sub>/NO ratio in exhaust gas to be treated is 1 or higher.

10 14. An exhaust gas treating method using the catalyst for removing nitrogen oxides as described in claim 1 or 2, wherein the O<sub>2</sub> concentration in exhaust gas to be treated is 6 percent or higher by volume.

15 15. The catalyst for removing nitrogen oxides according to claim 1, wherein said catalyst further comprises a molybdenum oxide.

16. The catalyst for removing nitrogen oxides according to claim 2, wherein said catalyst comprises a molybdenum oxide as a component for reducing NO to N<sub>2</sub>.

20 17. A catalyst for removing nitrogen oxides which removes nitrogen oxides in exhaust gas by reduction in the presence of ammonia, wherein a first catalyst which is highly active in removing nitrogen dioxide is arranged on the upstream side in the exhaust gas flow direction, and a second catalyst which is highly active in removing nitrogen  
25 monoxide is arranged on the downstream side of said first

catalyst in the exhaust gas flow direction.

18. A catalyst for removing nitrogen oxides which removes nitrogen oxides in exhaust gas by reduction in the presence of ammonia, wherein a first catalyst which is  
5 highly active in removing nitrogen dioxide is arranged on the upstream side in the exhaust gas flow direction, and a second catalyst which is highly active in removing nitrogen monoxide is arranged on the downstream side of said first catalyst in the exhaust gas flow direction, and

10 as said second catalyst, a catalyst comprising a titanium oxide as a first component and at least one or more kinds of vanadium oxide, tungsten oxide, and molybdenum oxide as a second component is applied, and

as said first catalyst, a catalyst in which said second  
15 catalyst comprises at least one or more kinds of copper oxide and chromium oxide as a third component is applied.

19. A catalyst for removing nitrogen oxides which removes nitrogen oxides in exhaust gas by reduction in the presence of ammonia, wherein

20 a second catalyst consisting of a catalyst comprising a titanium oxide as a first component and a vanadium oxide and a tungsten oxide as second components, and

a first catalyst consisting of a catalyst in which said  
second catalyst comprises a composite oxide of copper oxide  
25 and chromium oxide as a third component

are arranged in combination.

20. A catalyst for removing nitrogen oxides which removes nitrogen oxides in exhaust gas by reduction in the presence of ammonia, wherein

5       a second catalyst consisting of a catalyst comprising a titanium oxide as a first component and a vanadium oxide and a tungsten oxide as second components, and

      a first catalyst consisting of a catalyst in which said second catalyst comprises a composite oxide of copper oxide  
10 and chromium oxide as a third component

are combined, and

      said first catalyst is arranged on the upstream side in the exhaust gas flow direction, and said second catalyst is arranged on the downstream side of said first catalyst in  
15 the exhaust gas flow direction.

21. The catalyst for removing nitrogen oxides according to claim 20, wherein

      said catalyst comprises a molybdenum oxide as the second component of said second catalyst.

20       22. A catalyst for removing nitrogen oxides which removes nitrogen oxides in exhaust gas by reduction in the presence of ammonia, wherein

      a second catalyst consisting of a catalyst comprising a titanium oxide as a first component and at least one or more  
25 kinds of vanadium oxide, tungsten oxide, and molybdenum

oxide as a second component, and

a first catalyst consisting of a catalyst in which said second catalyst comprises at least one or more kinds of copper oxide and chromium oxide as a third component

5 are arranged in combination.

23. The catalyst for removing nitrogen oxides according to any one of claims 17, 18, 20 and 21, wherein

at least not less than  $1/4$  and less than  $4/4$  of an upstream catalyst flow path length in the exhaust gas flow direction is constituted by said second catalyst, and

a downstream catalyst flow path length in the exhaust gas flow direction is constituted by said first catalyst.

24. An exhaust gas treating method using the catalyst for removing nitrogen oxides according to any one of claims 15 to 23.

25. A combined cycle power generation facility comprising:

a compressor for compressing air;

burning means for burning compressed air compressed by said compressor and a fuel;

a gas turbine for generating electric power by expanding combustion gas sent from said burning means to obtain an output;

an exhaust heat recovery boiler in which exhaust from said gas turbine is sent and steam is generated, and the

catalyst for removing nitrogen oxides according to any one of claims 17 to 23 is arranged;

a steam turbine for generating electric power by expanding steam generated by said exhaust heat recovery

5 boiler to obtain an output;

condensing means for condensing exhaust steam of said steam turbine; and

supply means for supplying condensed water condensed by said condensing means to said exhaust heat recovery boiler. .

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